

ARMY REGULATION

No. 55-228

HEADQUARTERS
DEPARTMENT OF THE ARMY
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TRANSPORTATION AND TRAVEL TRANSPORTATION BY WATER OF EXPLOSIVES AND HAZARDOUS CARGO

Effective 1 July 1969

This is a complete revision and reflects changes in the Code of Federal Regulations. Local supplementation of this regulation is prohibited except upon approval of the Deputy Chief of Staff for Logistics.

Throughout this regulation, reference is made to Title 46, Code of Federal Regulations, Parts 146 to 149. This document, published annually, with supplements issued semi-annually, may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Reference is also made to CG 108, which is an excerpt of 46 CFR 146 and contains subpart 29 only. Subpart 29 covers shipments of military explosives and hazardous munitions, but does not cover the various other hazardous materials, such as inflammable, corrosives, chemicals, to mention but a few. In the event of a discrepancy between 46 CFR 146-149 and CG 108, the former will prevail.

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CHAPTER 1

GENERAL

1-1. Purpose and scope. This regulation establishes policy and provides procedures and direction governing Army-sponsored shipments of explosives and hazardous cargo aboard vessels (including barges) and applies to ships engaged in commerce on the navigable waters of the United States, its territories and possessions except the Panama Canal. The provisions of 33 CFR 113 govern the movement of explosives and hazardous cargo through the Panama Canal. Where applicable, and when not in conflict with local Government laws or the regulations of the host country, the provisions of this regulation will be implemented overseas.

1-2. Rules and regulations governing movement of explosives and hazardous cargo. The transportation of explosives and other hazardous cargo aboard ships of U.S. registry is governed by the provisions of U.S. Coast Guard CG 108, Rules and Regulations for Military Explosives and Hazardous Munitions (dated 1 May 1968), extracts 46 CFR 146.29 of the Code of Federal Regulations and subsequent reissues thereof.

1-3. Explanation of terms. The following terms are defined for use with this regulation.

a. Explosives. As defined in 46 CFR 146, section 146.20-1, an explosive is any chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion; i.e., with substantially instantaneous release of gas and heat. A listing of explosives is contained in sections 146.20-100 Table A, 146.20-200 Table B, and 146.20-300 Table C.

b. Hazardous cargo. As defined in 46 CFR 146, hazardous cargo is any article or substance (other than explosive) which meets any of the criteria contained in sections 146.19-1, 146.21-1, 146.22-1, 146.23-1, 146.24-1, 146.25-1, 146.26-1 and 146.27-1. A listing of items is contained with each subpart.

1-4. Prohibited explosives and packaging restrictions. *a.* Items listed in 46 CFR 146.20-3 will not be offered for water movement.

b. U.S. Coast Guard regulations in 46 CFR 146.02-8 require that shipments of explosives or other dangerous articles offered by or consigned to the Army, Navy, or Air Force shall be packed in accordance with appropriate Department of Transportation regulations, or in containers of equal or greater strength and efficiency.

1-5. Permit to load or discharge explosives (CONUS ports). Operators of commercial vessels engaged in loading or discharging explosives must have on board, prior to arrival at the berth, a written loading or discharge permit from the Captain of the Port, United States Coast Guard, and must show this permit upon demand.

1-6. Explosive anchorages. *a.* The regulations of most ports prohibit the loading or discharging of explosives and ammunition when the vessel is secured to wharves, except where loading piers for explosives have been established. Well defined explosive anchorages also have been established for vessels to load and discharge from lighters. Facility requirements for military explosives are contained in 46 CFR 146.29-15.

b. Within CONUS, the Captain of the Port, United States Coast Guard, will assign berths in explosive anchorage for the loading and discharging of explosives and large caliber ammunition. The agent of the vessel will assure that no vessel carrying explosives will occupy a berth in such anchorage without first obtaining a written permit from the Captain of the Port, United States Coast Guard.

c. In accordance with applicable local Army-Navy agreements, commanders of applicable ports of embarkation will coordinate with commandants of Naval Districts or the commanding officers of specified Naval Ammunition Depots or their designated representatives, regarding the arrival of Government-owned or controlled ships carrying returned ammunition and explosives, and will issue applicable instructions prior to arrival of vessels.

1-7. Compatability and quantity-distance requirements. Compatability requirements published in 46 CFR 146.29-99 and/or 146.20-90 as applicable, and explosive quantity-distance standards as published in TM 9-1300-206 will be observed.

1-8. Conflict with requirements. The requirements of this regulation may be waived when national defense interests (military necessity) including requirements for "combat loading" are involved. Waivers to 46 CFR 146 affecting cargo ships other than public vessels may be authorized only by the Commandant, U.S. Coast Guard.

1-9. Certificate for vessels loaded with ammunition for transit of Panama Canal. Vessels loaded with military explosives and hazardous munitions for transit through Panama Canal will carry a certificate issued by an authority such as the commanding officer of the loading port, Coast Guard Officer, Army Ordnance Inspector, Surveyor of the National Cargo Bureau or British Board of Trade, Port Authority official, or the master of the vessel, stating that the loading was in conformity with 46 CFR 146.29, CG 108. For cargo loaded locally, a certificate signed by the Port Transportation operations officer is acceptable.

CHAPTER 2

HARBOR CRAFT SERVICE

2-1. Tug and lighter permits (CONUS ports). Tugs and lighters engaged in loading or discharging vessels in explosive anchorages must carry written permits from the Captain of the Port, United States Coast Guard, and must show these permits whenever called upon.

2-2. Emergency equipment. For use in emergency, each barge or lighter must be provided with suitable anchor, ground tackle, foghorn and bell, and be equipped with Marine lifesaving gear and an adequate supply of approved fire extinguishers in accordance with current Coast Guard regulations.

2-3. Watchmen. While loaded with explosives or ammunition, each barge or lighter will at all times have a man on board as barge captain who will be on the alert to warn all approaching craft of danger.

2-4. Tugs. Tugs for barges carrying explosives will be furnished by the Government or lighterage company as follows: One tug at anchorage for each 10 barges or fraction thereof occupying such anchorage.

2-5. Lighters. Within CONUS, all lighters engaged alongside a ship in the loading or discharging of ammunition and explosives to or from the vessel will be moved to a safe distance when the work has been completed or has ceased for the day (quantity-distance standards table 31, TM 9-1300-206). Only in an emergency is loading or discharging of explosives and ammunition authorized at night unless adequate lighting is provided.

2-6. Smoking. Smoking will be prohibited on or in the vicinity of any vessel, barge, or lighter engaged in loading, unloading, or the transport of explosives or flammable materials except as provided in 46 CFR 146.29-29(C). In addition to the limitations of 46 CFR 146, no person will be allowed to take matches or other fire, flame or spark-producing devices into any loading or discharge area without permission from the port commander. Adequate facilities for the checking of such materials will be provided by the port commander.

2-7. Fire protection. Detailed instructions on fires and fire protection are contained in 46 CFR 146.29-25. Briefly, these provisions prohibit unnecessary fires; require constant attendance by a competent person for necessary fires; prescribe safeguards for power, heating, cooking or lighting fires and the attendant screen requirements on stacks; govern the use of welding or cutting operations involving the use of open flame or arc; blowing of tubes and uptakes; bunkering; fueling; transferring of lubricating and/or cleaning oils; fueling of powered lifeboats or units of the vessel machinery; display of red flag by day or red light by night while loading or unloading, and deenergizing of devices such as radios, radar capable of radiating electromagnetic energy. Section 146.29-27 requires charged firehoses during handling, loading, or unloading of military explosives.

2-8. Lights, tools and portable equipment. a. In addition to the provisions of 46 CFR 146-29-35, the following criteria will be observed:

(1) Members of the crew of the vessel and other persons permitted on board the vessel to aid and assist in loading, unloading, or handling military ammunition and explosives will not be permitted to carry on their persons firearms, matches, flame-producing devices, knives, bale hooks, metallic tools except as provided in *b* below, or personal packages of any description, except the prohibition against knives will not apply to the seaman's knife in possession of the members of the crew of the vessel, provided such crew-member(s) is not actually working the explosives or ammunition.

(2) Lunchboxes, pails, thermos bottles, other food containers, or personal packages of any description will not be brought on board a vessel unless such items have been examined and passed by the Coast Guard detail or other appropriate control agency. Food containers that are passed on board the vessel will not be stored in the hold in which ammunition and explosives are being worked nor will their contents be eaten in such hold.

(3) Persons engaged in handling and stowage of military ammunition and explosives will not wear shoes or boots shod or strengthened with iron nails or other spark-producing metal unless such footwear is covered with rubber, leather, or other nonsparking material.

b. The Captain of the Port may authorize the use of pinch bars of metal or wood, in "breaking out" or stowing unfuzed bombs, large caliber separate loading projectiles, and packages of ammuni-

tion shipped in heavy unit weight containers. He may also permit the use of saws and hammers that are actually powered by the hand, or hand and arm, in the hold of a vessel when necessary in fitting dunnage or constructing a partition or a division bulkhead or installing protection required for the stowage of military explosives. The Captain of the Port may authorize spark proof electrically powered or pneumatic saws or hammers, but they will not be used in any compartment containing military explosives.

CHAPTER 3

HANDLING, LOADING, STOWING, AND UNLOADING

3-1. Control of personnel. In addition to the provisions of 46 CFR 146.29-21, all persons having business on board vessels or lighters loading or discharging explosives, other than members of the crew or stevedores properly employed in connection herewith, must have a pass either from the proper military authorities or from the Captain of the Port. No person who, in the judgment of the Coast Guard Officer in charge of the Coast Guard detail, is considered as being under the influence of intoxicating liquor or drugs will be permitted on board a vessel during the handling, loading, and unloading operations.

3-2. Technical assistance in loading and stowing. *a.* In all cases where ammunition and explosives (except Class C) are to be loaded aboard a vessel where no Coast Guard supervisory personnel are in attendance, qualified ordnance personnel will be requested to advise in the handling and stowing of explosives aboard ship and will be present for the purpose of giving technical advice on laying out the cargo plan and in the handling and stowing of the explosives.

b. The TM 9-1300, 9-1900 and TM 38-250 series manuals contain a description of DA explosives and ammunition and appropriate safety precautions.

3-3. Preparation of magazines for handling explosives. The provisions of 46 CFR 146.29-73 will be observed prior to loading and discharging operations involving military explosives.

3-4. Preparation of hold for stowage of ammunition. The provisions of 46 CFR 146.29-81 will be complied with. To the extent possible, sheathing and dunnaging will be completed prior to loading operations.

3-5. Fires and fire protection. When handling explosives, vessels must be able to get under way promptly in the event of fire, bad weather, or other emergencies. Power will be available at all times. Axes will be readily available for cutting mooring lines. A sufficient number of personnel will remain on board in a state of readiness to get under way immediately. Under no circumstances will a ship shut down its propulsion machinery without obtaining permission from the commanding officer

of the terminal and/or depot. Where feasible, ships loading or discharging explosives will berth bow out. The provisions of the 46 CFR 146.29-25 will be observed.

3-6. Loading plan. *a.* Prior to loading in CONUS ports a written application for permit to load military explosives and lethal military chemicals (except material covered in 46 CFR 146.29-100 as Coast Guard Class 1) accompanied by a preliminary draft and prestowage plan (para 5-8, DoD Regulation 4500.32R (MILSTAMP) must be submitted and approved by the District Commander of the US Coast Guard, Captain of the Port or other officer designated by the District Commander as required in 46 CFR 146.29-13. A copy of the approved loading plan will be furnished to the master of the ship prior to loading operations. Deviations from the approved loading plans must be approved before loading is continued.

★*b.* In addition to the approvals required in *a* above, the Commander, Military Sealift Command, or his area representative must approve the loading plan if the cargo is to move on board a MSC or MSC-chartered ship.

c. SHIPS LOADED AT FOREIGN PORTS WITH DANGEROUS OR HAZARDOUS CARGO FOR DELIVERY TO THE CONUS WILL BE REQUIRED TO OBSERVE THE PROVISIONS OF THIS PARAGRAPH SINCE A LOADING PLAN IS REQUIRED BY THE CAPTAIN OF THE PORT AT THE OFFLOADING PORT BEFORE AN OFFLOADING PERMIT IS ISSUED.

3-7. Towing cables. While on ammunition or explosives berth, a suitable hawser for towing will be made fast to the ship's structure with slack coiled on deck and hung through chocks on the off-shore side of the ship so that it may be taken in tow without assistance from on board. At least one cable will be so fitted forward and one aft. A short messenger (pendant) will be kept bent on the eye of the hawser to facilitate the taking in of the hawser on board a tug.

3-8. Master's responsibility. *a.* The master of the ship is responsible for the safety of his ship and is responsible for insuring that the explosives and hazardous cargo are properly stowed in accordance with the law and the various regulations pertaining to the safe transportation by sea, and that various types are kept separated as required by regulations.

b. When, in the opinion of the master, the cargo is not being properly stowed or loaded as required by law and regulations, the master has the authority to stop the loading at once, and have the matter placed before the proper Port Authority for decision.

★**3-9. Captain of port responsibilities (CONUS port).** The Captain of the Port will designate an emergency (sinking area) anchorage (see para 76, TM 9-1300-206).

3-10. Weight per draft. *a.* Compliance with the provisions of 46 CFR 146.29.41 is mandatory. In addition, drafts to be lifted by 5 ton booms which are rigged as a union or burton system (see TM 55-513) will not exceed 3 long tons.

★*b.* Weights in excess of 3 long tons may be lifted if booms are rerigged to accommodate the additional load, winch capacity is not exceeded, and all other gear is in conformance with the safe working load to the satisfaction of the responsible master of the vessel and/or MSC representatives.

★*c.* When booms of a greater lifting capacity are available and required, the method for rigging and the gear required to insure a safe working load will be as established in accordance with the determinations of the master of the vessel involved and/or MSC representative.

3-11. Loading and handling. *a.* Persons engaged in the handling and storing of explosives and/or hazardous cargo must be closely supervised and warned frequently of the necessity of using utmost caution in the performance of their duties. A safety program will be maintained at all facilities subject to the provisions of this regulation within the policy, scope, and responsibilities of the Army Safety Program prescribed in AR 385-10.

During the handling of toxic oxidizers, fuels, or chemical agents, protective equipment will be provided and worn by personnel. Handling of explosives and chemical, biological and radiological (CBR) material will be kept to a minimum so as not to cause packages to leak or become damaged. When shutoff valves are a part of the shipping container, they will be safety wired in the appropriate position (usually off) and will be protected by a fibreboard sleeve.

b. Mixed shipments of ammunition and/or hazardous materials will be loaded aboard ships in accordance with the provisions of 46 CFR 146.

c. Explosives and hazardous cargo will be stowed in such a manner as to minimize the danger of fire and explosion. This can be accomplished by stowing the various groups separately and in such a manner that they will not shift. Explosives and hazardous cargo will be stowed within and "on deck" in accordance with the stowage charts in 46 CFR 146.

d. Stowage of explosives and hazardous cargo aboard barges will be subject to the provisions of 46 CFR 146.

e. Materiel not listed in 46 CFR 146 will require an analogous assignment of an explosive class by the shipper (TM 9-1300-206). This identification by analogy will accord handling in the same manner as a similar type listed in the CFR.

f. Actions will be taken to insure that ship's cargo gear and stevedore gear are in good and safe working order (see 46 CFR 146.29-39). Sling loads must not under any conditions be dragged across the hold or allowed to come in contact with stanchions or hatch coamings. Under no circumstances will slings be returned by hooking them to the tackles and then pulled from under the load. Sling loads will be lowered carefully, contents removed, and sling returned. On lifting operations which require workmen to be under swinging loads, a signalman will be at the immediate site and will have a warning whistle of clear and penetrating sound to warn workmen when the load is coming over or in.

g. Cargo nets alone will not be used for lifting ammunition containers. In hoisting and lowering ammunition containers with cargo nets, a rigid wooden platform will be placed in the center of the net upon which the containers can be stacked in such a manner as to prevent shifting.

h. Nonsparking metal tools will be used where necessary. Packages of explosives must not be thrown, dropped, rolled, dragged, walked on, or slid over each other. Packages marked "THIS SIDE UP" will be handled in this manner and will be so stowed.

i. Packages or explosives or ammunition damaged or broken in transit may be recoopered, provided recoopering is practicable, but only at specifically designated areas, and as authorized by competent authority.

j. Packages containing explosives and hazardous material which show signs of leakage must be

rejected. Defective or leaking packages or containers may be detected by a discoloration of the container, with or without an odor, or, in the case of unboxed cylinders or projectiles, a corroding of the material near the leak.

k. Ammunition shipments in CONUS containers will comply with 46 CFR 146.29-90.

l. Only approved type electrical MHE will be utilized in handling explosives aboard vessels transporting military ammunition.

3-12. Securing cargo. Particular attention is directed to the necessity for thorough inspection and observance of methods employed for securing cargo during and after loading. Methods must conform to approved and accepted practice. Strict attention will be paid to the securing of the hatch beam fastenings, and battens.

CHAPTER 4

SHIPPING CHEMICAL MATERIAL

4-1. Chemical material described. *a.* Chemical shipments are made in two categories. They are ammunition and bulk shipments of chemicals.

(1) *Ammunition.* 46 CFR 146.29-100, Classes II-D, II-E, II-F, II-G, II-H, II-J, XI-A and XI-B contain a specific listing of chemical ammunition, required marking, DOT classification, hazards present in each class, appropriate countermeasures to protect personnel, and instructions for all handling and for stowage aboard ship. Items listed in the above classes containing two or more components that are assigned a hazardous classification will be handled under the procedures prescribed for the higher rated components.

(2) *Bulk shipments of chemicals (other than ammunition).* When shipped in bulk or packaged, chemicals must be shipped in conformity with the regulations for the appropriate classification of the chemical as indicated in the "Description" column of the tables in 46 CFR 146.29-100. The classifications are—

(*a*) Flammable liquids (see 46 CFR 146.21).

(*b*) Flammable solids (see 46 CFR 146.22).

(*c*) Oxidizing materials (see 46 CFR 146.22).

(*d*) Corrosive liquids (see 46 CFR 146.22).

(*e*) Extremely dangerous poisons—Class A (see 46 CFR 146.25-5).

(*f*) Less dangerous poisons—Class B (see 46 CFR 146.25-10).

(*g*) Tear gasses or irritating substances—Class C (see 46 CFR 146.25-15).

b. 46 CFR 146.25-100/146.25-200 and 146.29-300 contain a listing of chemical agents, characteristic properties, required labeling, stowage requirements and restrictions for movement.

c. Radioactive material will be labeled in accordance with the provisions of 49 CFR parts 170 to 190 (T. C. George's Tariff No. 19, para 173.414 or successive issues thereof).

d. Nuclear weapons are listed under Class X-B, 46 CFR 146.29-100, which directs handling and transportation in accordance with pertinent military service directives. AR 55-203 governs the transportation of nuclear weapons, components and nuclear weapons material.

4-2. Stowage and handling of chemical material. *a.* Chemical material will be transported on non-passenger carrying ships (except guards and/or technical escorts) equipped with watertight bulkheads and will be stowed in accordance with 46 CFR 146.

b. The Chemical Officer of the Army command will be called upon to render assistance in the event of an accident/incident.

4-3. Precautionary safeguards. Protective equipment such as masks, gloves, clothing, and suitable neutralizing agents will be available to personnel handling toxic gases, etiologic agents, and white phosphorus. When toxic chemicals are to be handled or stored, port commanders will request Army agencies to assign qualified personnel to instruct handling personnel in the use of the protective equipment and/or provide technical advice in connection with operations if such local personnel are not available. If technical escorts are assigned to the shipment, they will be utilized for such purposes.

4-4. Fuels and oxidizers (missiles and rockets).

a. Handling and stowage of fuels and oxidizers are governed by the provisions of 46 CFR 146.22-1 through 146.29-59 and 146.29-11(b). A list of inflammable solids and oxidizing materials are contained in 46 CFR 146.22-100 and 146.29-100.

b. In addition to the above restrictions, unrelated activity should be kept to a minimum in the operations area when these materials are being handled. If a leaking container is detected, only personnel with complete protective clothing equipment will be permitted in the area. Constant sur-

veillance and supervision will be maintained by technically qualified personnel at all operations involving the handling and stowage of this material.

c. Guided missile oxidizers and fuels are of high quality or concentration, usually very volatile, and many will react violently if permitted to mix with others. "On Deck" stowage is preferred aft with

oxidizer getting the aft location in preference to fuels. Strict compliance with 46 CFR 146.29-5, and 100 is mandatory. In the absence of instructions to the contrary, drums of these chemicals will be stowed in a vertical position at all times, and should be protected from the direct rays of the sun or excessive heat.

CHAPTER 5

RETURN TO UNITED STATES OR INTRATHEATER SHIPMENTS

5-1. Authorization required before shipment. Explosives, ammunition, or chemicals will not be returned to the United States or shipped to other oversea commands until specific authorization has been obtained from the Department of the Army or from an appropriate ammunition control agency.

5-2. Screening and segregation. *a.* Screening and segregation under the supervision of competent ammunition inspectors will be carried out to prevent the offering for movement of unsafe ammunition, explosives, and chemicals. Particular attention is called to containers that have been exposed to weather and may contain deteriorated materials or corroded ammunition. Unsafe or rejected ammunition, explosives, and chemicals will be disposed of locally by burning, demolition, neutralization, or dumping at sea.

b. Materiel such as vehicles, weapons, salvaged empty projectiles, cartridges, cartridge cases, and other such supplies and equipment, likely (suspected) to have been explosive loaded or contaminated, will be individually inspected by the shipper prior to shipment from oversea commands. The shipper is required to affix a Materiel Inspection Tag (DA Form 9-1) in accordance with paragraph 10, AR 740-20, indicating that the item or shipment has been inspected and that all explosives have been removed prior to shipment. Port commanders will refuse to accept such shipments without shipper certification. Ocean manifests will be annotated to indicate that the shipment has been inspected.

5-3. Preparation of return shipment. Explosives will be shipped in approved containers, whenever possible. Improvised containers must equal or exceed specifications of the approved container. Marking and addressing of containers will be in accordance with DOD Regulation 4500.32R, Military Standards Transportation and Movement Procedures/and MIL-STD 129. Military guards and/or technical safety escorts for military shipments will be in accordance with appropriate regulations.

5-4. Stowage aboard ships. Normally, not less than 500 short tons of ammunition, explosives, and chemicals will be returned in any one ship. Explosives, ammunition, and chemicals will not be loaded on the same ship with scrap. Strict compliance with 46 CFR 146 through 149 and CG 108 is mandatory. Ammunition, explosives, and chemicals will be stowed separately from other cargo and top-stowed or so loaded that removal upon arrival at destination can be accomplished without having to unload other cargo before the ship is docked. A manifest listing the ammunition, explosives, or chemicals indicating the hold and location will be furnished to the master (see 46 CFR 29-14). The ammunition listed on the manifest will be described by the shipping name as shown in 46 CFR 146-149 (CG 108) and will be prepared in accordance with the provisions of chapter 5, DOD Regulation 4500.32R.

5-5. Discharging at Naval facilities. When Army-responsible ammunition and explosive shipments are scheduled to be discharged at tidewater Naval facility, Army may, on valid request, furnish a liaison officer with adequate qualified personnel under his control, for the purpose of furnishing technical assistance to the Naval facility regarding the segregation and consolidation of shipments concerned. The terminal costs incident to discharging of vessel for Army-responsible ammunition and explosive shipments at a Naval facility will be borne by the service operating the terminal on a reimbursable basis. The application of this provision will apply at CONUS tidewater Naval facilities as well as oversea activities husbanding Army-responsible ammunition and explosive shipments.

5-6. Water shipment of nuclear weapons. *a.* The courier officer is responsible for the safety and security of the shipment while it is in his custody.

b. The ship's master is responsible for insuring that the nuclear cargo is properly stowed in accordance with the law and the regulations pertaining to the safe transportation by sea of these munitions. The master and/or crew will be af-

forded access to the storage areas whenever the safety of the ship is concerned. When such access is required, the courier and/or crew will be afforded access to the storage areas whenever the safety of the ship is concerned. When such access is required, the courier and/or guard(s) will accompany the crewmember. The two-man rule will be observed at all times.

c. When, in the opinion of the master, the cargo is not being properly stowed or loaded as required by law and regulations, the master will stop loading at once, and the matter will be placed before the proper port authority for decision.

d. Nuclear weapons will receive a minimum of handling upon arrival at the terminals. If they cannot be delivered to the pier and loaded aboard ship immediately, they will be stored in the delivering carrier equipment unless there exist compelling reasons to the contrary. In the handling and transferring of these weapons, extreme care will be exercised to insure minimum exposure to shock. Positive actions will be taken to avoid accidents, incidents, or damage. Immediately prior to use, all mechanical handling equipment will be tested to insure that it is in good operating order. Experienced personnel will be used as operators of such equipment.

e. Loading and unloading operations will be conducted during daylight hours whenever possible. If night operations are required, the lighting requirements specified in this regulation will be observed.

f. Quantity-distance criteria for placement of railcars and/or trailers containing nuclear weapons and other railcars and/or trailers containing incompatible cargo is contained in TM 9-1300-206 and TM 39-20-12.

g. Prior to use with nuclear weapons, the ship's cargo or jumbo boom (or crane) will have a valid Coast Guard inspection certificate which states that the gear is in good operating condition under current American Bureau of Shipping requirements. To insure proper spooling of the wire rope on the drums of the winches and to evaluate the adequacy of working equipment, a test load at least three times the weight of the weapon(s) to be han-

dled will be hoisted and lowered through the full cycle to the same position used when handling these weapons provided the weight does not exceed the rated safe working capacity of the boom. When practicable, winches will be operated in low gear to obtain a slow even speed.

h. Only four-legged slings with approved safety hooks will be used for the handling of nuclear weapons. Slings will have a rated capacity of 50 percent greater than the weight of the weapons to be lifted and have a minimum breaking strength of five times the rated capacity of the sling. Slings will be tested immediately prior to their use.

i. Groups of nuclear weapons will be stowed in compartments above the waterline and more than eight feet from the sides of the ship. Nuclear weapons will be stowed and properly secured with their long axis athwartship and in a linear or planar array as provided in TM 39-20-12. Weapon containers must be accessible at all times for in-transit inspections and monitorship with detection equipment. Stowage of Coast Guard regulated label or noncompatible cargo in the same compartment is prohibited. Nuclear weapons will remain in their original stowage location until discharged at port of destination and, to the extent possible, they will be the last on and first off the ship. Where possible, individual destination hatch stowage will be accorded. When not possible, multideestination nuclear weapon shipments will be arranged in the compartment in such a manner that offloading personnel will not have capability of visual or physical penetration to the beyond port of call nuclear weapon material.

j. If lighterage is required in loading or unloading, the appropriate port authority will provide adequate covered lighterage and assure that approved handling equipment is used. Prior to use, the port commander or his designated representative will inspect the lighter to determine that it is in a good state of repair.

k. Tritium monitoring is required when certain Army weapons are transported on Navy vessels. Courier officers escorting such shipments must be capable of using monitoring equipment provided for this purpose.

APPENDIX

REFERENCES

1. Department of Transportation Regulation 49 CFR 170-190 (T. C. George's Tariff 19. ICC No. 19 and subsequent changes and reissues thereof).
2. Federal Aviation Administration Regulation 14, CFR 103, Transportation of Dangerous Articles and Magnetized Materials (Official Air Transport of Restricted Articles Tariff No. 6-F, CAB No. 82 or reissues thereof).
3. TM 38-250 Packaging and Handling of Dangerous Materials for Transportation by Military Aircraft.

30 April 1969

AR 55-228

The proponent agency of this regulation is the Office of the Deputy Chief of Staff for Logistics. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications) to the Deputy Chief of Staff for Logistics, ATTN: LOG/TR-TEB, Department of the Army, Washington, D.C. 20310.

By Order of the Secretary of the Army:

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NG: None.

USAR: None.

For explanation of abbreviations used, see AR 320-50.

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